

has noted that during the contraction of the mylohyoid the tongue "wird nach vorn und oben gezogen." For the further development of this movement into the protrusion of the tongue all that is required is the further simultaneous advance of the hyoid bone and a more complete contraction of the mylohyoid muscle.

I propose completing this study with a detailed account of the dissection of the structures involved, for which I am awaiting the supply of larger objects than the common grass-frog, which is alone at my disposal at Cork.

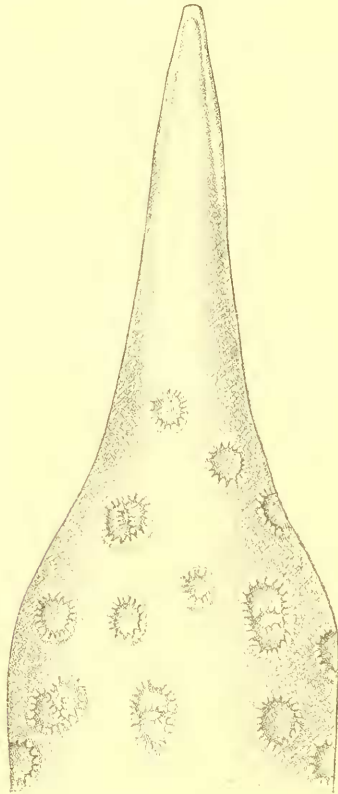
LXIV.—*Note on a Dolphin showing traces of an Encounter with a Cuttlefish.* By Professor D'ARCY W. THOMPSON, C.B.

A SPECIMEN of *Grampus griseus* which I obtained last Christmas at Galway set me thinking of the curious markings which have been often described as present on this species, though I did not find them on this particular specimen. These markings are well figured in Flower's paper in the 'Transactions of the Zoological Society' (vol. viii. pl. i.); and the suggestion first made by Capt. Chaves, of Ponta Delgada\*, that they are the traces of encounters with large cuttlefishes is now well known and generally accepted. The purpose of this note is to call attention to a very much older figure of a dolphin on which a great cuttlefish has left his unmistakable marks.

The annexed figure is a copy of that on pl. xxviii. (Mammitères) fig. 2, of the 'Voyage de l'Astrolabe,' and represents the lower surface of the head of *Delphinus nove-zelandiae*, Q. et G., a somewhat doubtful species very closely resembling *D. delphis*. On p. 150 of the text the authors say:—"On remarque sous la mâchoire inférieure des pores formant de petits anneaux; et sur le corps, de petites plaques de stries blanches assez régulièrement contournées." This statement appears again in Gray's 'Catalogue of Seals and Whales,' p. 246. A glance at the figure will show that the so-called pores are the clear impressions of the suckers of a cuttlefish. The dolphin itself was 5 feet 10 inches long, and we may judge from the figures that the sucker-rings were about, or very nearly, an inch in diameter. We may, perhaps, go a

\* In Girard's "Céphalopodes des îles Açores," Jour. Sc. math. phys. e natur., Lisboa, (2) ii. 1892. Cf. also Richard et Neuville, Mém. Soc. Zool., Paris, vol. x. p. 102 (1897).

little further, and surmise that while these impressions were left by the suckers, the patches of "striae" were produced by tentacular *hooks*—in short, that the cuttlefish which made both was a giant *Onychoteuthis*. And on closer inspection of Flower's figure (already quoted), we seem to see there also



both the rounded impressions of suckers and the deeper longitudinal scores of hooks. MM. Richard and Neuville, in the case of the grampus they describe, are inclined to ascribe both sets of markings to the action of suckers, and suppose them to have been made by an *Architeuthis*.

I am inclined to ascribe to a similar origin certain markings that various other authors have described without venturing to attribute them to a definite cause. Prof. Van Bambeke, in a paper on the hair-follicles of the upper jaw in *Tursiops*, (Bull. Acad. Roy. Belg. 1888), has quoted certain of these

observations, pointing out that some, but not all, are to be looked upon as the traces of rudimentary hairs. For instance, Dr. A. Fjelstrup, of Copenhagen (Zool. Anz. xi. p. 14, 1888), writes as follows:—"Bei den meisten in Midvag getöleten *Globocephalen* zeigte die Haut, zumal in der Unter- und Oberkieferregion, eine Menge kreisförmiger Porenfiguren, in Grösse und Anordnung individuell sehr verschieden. Die Kreise haben meistens einen Durchmesser von 0.5-1 cm., einzelne bis über 1.5 cm. Die Anzahl der Poren in jedem Kreise variiert der Grösse gemäss von etwa 20-50; ihr Durchmesser ist durchschnittlich 0.16 mm. Es finden sich sowohl unvollständige, sich schneidende oder beinahe concentrische Kreise als vereinzelte Poren." The general description of these structures, their size, the manner in which the circles intersect or overlap, their irregular arrangement, in various parts and on some individuals only, and the further statement that no sign of them is visible in the foetus, all incline me to think that here also we have to do with scars left by a cuttlefish. Similar structures have evidently been observed in *Globocephalus* by Bennett, quoted by Eschricht and again by Fjelstrup:—"On the head, and chiefly around the lips, the skin is marked with many scattered circles, each the size of a sixpence, and composed of a single row of small depressed dots, which would appear to mark a disposition to the formation of vibrissæ or whiskers." I need hardly repeat that I do not agree with this interpretation of their cause.

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LXV.—*A List of Californian Diatoms.*

By C. MERESCHKOWSKY.

[Concluded from p. 480.]

133. *Campylodiscus Thuretii*, Bréb. San Pedro, Monterey, not rare. [M.]
134. *Striatella unipunctata*, Agardh. San Pedro, Monterey, not rare. [M.]
135. *Rhabdonema lineare*, Mer. Common in Northern California; Monterey, rare; San Pedro, very rare. [M.]

This species has been described and figured in my paper "On Polynesian Diatoms" (see chapter iv.).

136. *Rhabdonema*, sp.? (Pl. V. figs. 21, 22.) Northern California, rather rare. [M.]

Valve linear-rhombic or rhombic, strongly gibbous in the

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